PROGETTO DI RICERCA E PIANO DI FORMAZIONE PER UN ASSEGNO DI RICERCA ANNUALE L. 240/2010, D.R. N. 416 DEL 19/04/2011 (AGGIORNATO AL 16/11/2016) ART. 3 B (ASSEGNO AUTOFINANZIATO) E ART. 5 B (PROGRAMMA DI RICERCA SPECIFICO)

TITLE:

DEVELOPMENT OF ONTOLOGIES FOR APPLIED SCIENCES.

TUTOR:

Prof. Emanuele Ghedini

WORKING SITE:

DIN - Dipartimento di Ingegneria Industriale (viale Risorgimento 2 and via Saragozza 8. Bologna)

RESEARCH PROJECT:

The **Department of Industrial Engineering** (**DIN**) of the **University of Bologna** (**UNIBO**) participating to the H2020 project **OntoCommons - *Ontology-driven data documentation for Industry Commons***, approved and financed by the European Commission in the framework of the topic *DT-NMBP-39-2020 Towards Standardised Documentation of Data through taxonomies and ontologies (CSA).*

OntoCommons lays the foundation for interoperable and standardised data documentation across all materials and manufacturing domains, thereby facilitating data sharing and pushing data-driven innovation to bring out a truly Digital Single Market and new business models for European industry to meet the opportunities of digitalisation and sustainability challenges.

This will be achieved by coordinating a wide range of EU stakeholders for the development of an Ontology Commons EcoSystem (OCES) that comprises a set of ontologies and tools following specific standardisation rules. OCES provides a sustainable approach to harmonised data documentation through ontologies, making the data FAIR (Findable, Accessible, Interoperable and Reusable), and implementing practical and user-friendly mechanisms of intra- and cross-domain interoperability focusing on materials and manufacturing sectors. Demonstration cases with strong industrial involvement covering a wide range of NMBP application domains and stakeholders' feedback loops will guide the OCES development to prove its effectiveness in accelerating data-driven innovation.

OntoCommons represents relevant stakeholder knowledge by bringing together a consortium from a wide range of communities, including subject-matter experts (e.g. material scientists), ontologists (e.g. philosophers, semantic web experts), implementers (e.g. database experts), industrial end users (e.g. manufacturers), and application developers.

OntoCommons will achieve its aims through activities consistent with its CSA nature, building on communication, networking, coordination and cooperation between EU and international stakeholders connected with relevant National, European and international projects, initiatives and bodies (incl standards organisations) facilitating the access to the available state of the art and emerging tools and solutions as well as the harmonisation of already existing EU funded initiatives, making efficient use of EU resources

OntoCommons activities for DIN are fully integrated into existing and emerging developments in materials and manufacturing, including integration with digital materials modelling marketplaces and open simulation platforms. Its footing on the European Materials Modelling Ontology (EMMO) ensuring wide interoperability and standardisation.

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ACTIVITY PLAN:

The Research Associate will take part to the activities of UNIBO-DIN in the *OntoCommons* project, focusing on ontology development and application. In particular in the development of the EMMO meretopological and mereocausal system and in the identification of alignments between EMMO and other otnologies

REQUIREMENTS:

Applicants must meet **at least one** the following mandatory **requirements**:

- Philosophical background with some experience in mereology
- Computer science background with some experience in semantic web technologies

Moreover, the following **preferred requirements** will be considered during evaluation of the applicants:

- Multidisciplinary curriculum

TRAINING PLAN:

A dedicated training plan will be scheduled during the first months of the collaboration in order to overcome the lack of knowledge in one or more of the above-mentioned preferred requirements.

RELATIONS WITH OTHER ENTITIES:

The OntoCommons project involves twelve different academic and industrial partners within EU from Italy, Austria, Germany, Belgium, Norway, Netherlands, Spain and United Kingdom.

A strong collaboration with the FILCOM UNIBO department is foreseen.

The full list of participants is available here: https://cordis.europa.eu/project/id/958371

THE TUTOR
Prof. Emanuele Ghedini

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